

What Is Claimed:

1. An absorbent sponge-like product comprising:
a multi-layer compressible substrate, said substrate
comprising a plurality of stacked plies of a textured paper web, the paper
web having an Overall Surface Depth of greater than about 0.2mm, the
5 paper web comprising pulp fibers, the paper web having a basis weight
of at least about 10 gsm, the paper web containing a wet strength agent,
said plies being attached together; and
an outer cover that allows water to pass therethrough, said
compressible substrate being enclosed by the outer cover, the outer
10 cover comprising a flexible porous material.
2. A sponge-like product as defined in claim 1, wherein the
stack plies are formed from a single folded paper web.
3. A sponge-like product as defined in claim 1, wherein the
paper web further comprises wet resilient fibers, the wet resilient fibers
comprising thermomechanical pulp, said wet resilient fibers being
present in the paper web in an amount from about 10% to about 50% by
5 weight based upon the total weight of fibers present within the web.
4. A sponge-like product as defined in claim 1, wherein the
paper web has a molded textured surface created during throughdrying.
5. A sponge-like product as defined in claim 1, wherein the
outer cover comprises a material selected from the group consisting of a
meltblown web, a spunbond web, a paper towel, a bonded carded web,
a scrim material, a mesh material, a net, an apertured material, and
mixtures thereof.
6. A sponge-like product as defined in claim 1, wherein the
substrate comprises at least 10 stacked plies.
7. A sponge-like product as defined in claim 1, wherein
certain of the stacked plies are apertured.
8. A sponge-like product as defined in claim 1, wherein the
paper web has an internal pore volume of at least 50%.

9. A sponge-like product as defined in claim 1, wherein the plies are attached together at selected locations by thermal bonding binder fibers between the plies.
10. A sponge-like product as defined in claim 9, wherein the binder fibers comprise multicomponent fibers.
11. A sponge-like product as defined in claim 9, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.
12. A sponge-like product as defined in claim 1, wherein the plies are attached together at selected locations using an adhesive.
13. A sponge-like product as defined in claim 1, wherein the outer covering includes a first section attached to a second section, the first section having an abrasive surface.
14. A sponge-like product as defined in claim 13, wherein the first section comprises a meltblown web having shot present on the surface of the web.
15. A sponge-like product as defined in claim 14, wherein the second section comprises a spunbond web or a paper towel.
16. A sponge-like product as defined in claim 1, wherein the sponge-like product contains an additive associated with the compressible substrate, the additive comprising a soap, a detergent, a buffering agent, an antimicrobial agent, a skin wellness agent, an indicator for an analyte, a lotion, or mixtures thereof.
- 5 17. A sponge-like product as defined in claim 1, wherein the outer cover is sealed around the compressible substrate.
18. A sponge-like product as defined in claim 1, wherein the textured paper web has a Wet Compressed Bulk of at least about 6 cubic centimeters per gram.
19. A sponge-like product as defined in claim 1, wherein the textured paper web has a Wet Springback value of at least about 0.6.

20. A sponge-like product as defined in claim 1, wherein the compressible substrate has an Absorption Capacity of at least about 6.

21. A sponge-like product as defined in claim 1, wherein the plies are attached together at selected locations using a hot melt adhesive.

22. A sponge-like product as defined in claim 21, wherein the hot melt adhesive is printed onto certain of the textured paper webs.

23. A sponge-like product as defined in claim 1, wherein the product has an Absorption Capacity of at least 12 gm/gm.

24. A sponge-like product as defined in claim 1, wherein the product has an Absorption Capacity of at least 17 gm/gm.

25. A sponge-like product as defined in claim 1, wherein the product has a Wet Compressive Recovery of at least 75%.

26. A sponge-like product as defined in claim 1, wherein the outer cover comprises a meltblown web formed directly on an outer ply of the multi-layer compressible substrate.

27. A sponge-like product as defined in claim 1, wherein the outer cover comprises a meltblown web having an open structure, the meltblown web comprising fibers having a mean diameter of greater than about 0.2 mm.

28. A sponge-like product as defined in claim 1 that is substantially latex free.

29. A sponge-like product as defined in claim 1, further comprising an absorbent layer of foam.

30. A sponge-like product as defined in claim 1, further comprising an indicator that detects the presence of an analyte.

31. A sponge-like product as defined in claim 30, wherein the indicator changes color in the presence of an analyte selected from biological pathogens and toxins.

32. A sponge-like product as defined in claim 1, comprising a binder material that has been printed in a pattern to one or more of the plies.

33. A sponge-like product as defined in claim 32, wherein the printed binder material is a hotmelt that was applied in the molten state.

34. A sponge-like product as defined in claim 32, wherein the printed binder material is a latex.

35. A water absorbent sponge-like article comprising:
a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of an uncreped throughdried paper web, the compressible substrate having at least 5 plies and a void
5 volume of at least 50%, the paper web comprising high-yield softwood fibers, the paper web having a basis weight of at least about 15 gsm, the paper web containing a wet strength agent, the paper web having an Overall Surface Depth of greater than about 0.2 mm and wherein the plies are attached together at selected locations occupying less than
10 about 80% of the surface area of the plies to form an integral structure having an Absorption Capacity of about 10 or greater.

36. A sponge-like article as defined in claim 35, wherein the paper web has a molded textured surface created during throughdrying.

37. A sponge-like article as defined in claim 35, wherein the substrate comprises at least 10 stacked plies.

38. A sponge-like article as defined in claim 35, wherein the plies are attached together at selected locations by thermal bonding binder fibers between the plies.

39. A sponge-like article as defined in claim 38, wherein the binder fibers comprise multicomponent fibers.

40. A sponge-like article as defined in claim 38, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.

41. A sponge-like article as defined in claim 39, wherein the binder fibers are applied to each ply in an amount of from about 1% to about 5% by weight of each ply.

42. A sponge-like article as defined in claim 35, wherein the article has a Wet Springback of at 0.6.

43. A sponge-like article as defined in claim 35, wherein the article has a Loading Energy Ratio of at least 0.6.

44. A sponge-like article as defined in claim 35, wherein the article has a Wet Compressed Bulk of at least 7 cubic centimeters per gram.

45. A sponge-like article as defined in claim 35, wherein the plies are attached together at selected locations by a hot melt adhesive.

46. A sponge-like article as defined in claim 35, wherein the article has an Absorption Capacity of at least 17 gm/gm.

47. A sponge-like article as defined in claim 35, wherein the article has a Wet Compressive Recovery of at least 75%.

48. An absorbent sponge-like product comprising:

- a multi-layer compressible substrate, said substrate comprising a plurality of stacked plies of a paper web, the paper web comprising softwood fibers and high-yield fibers, the paper web having a
- 5 basis weight of from about 15 gsm to about 80 gsm, the paper web having a molded textured surface, the paper web containing a wet strength agent, and wherein the plies of the substrate are attached together at selected locations by thermally bonding binder fibers between the plies; and
- 10 an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover including a first primary surface and a secondary primary surface, said first primary surface being made from a meltspun nonwoven web having an abrasive surface defining said primary surface.

49. A sponge-like product as defined in claim 48, wherein said first primary surface comprises a meltblown web having shot present on the surface of the web.

50. A sponge-like product as defined in claim 48, wherein the secondary primary surface is made from a paper web, a spunbond web, or a meltblown web.

51. A sponge-like product as defined in claim 48, wherein the binder fibers are applied to each ply in an amount from about 1% to about 5% by weight.

52. A sponge-like product as defined in claim 48, wherein the substrate comprises at least ten stacked plies.

53. A sponge-like product as defined in claim 52, wherein the paper web has an internal pore volume of at least 50%.

54. A sponge-like product as defined in claim 48, wherein the second primary surface is water impermeable.

55. A sponge-like product as defined in claim 48, further comprising a water impervious barrier material positioned in between said first primary surface and said second primary surface, said barrier material for preventing fluids contacting the first primary surface to reach
5 the second primary surface.

56. A tool for scrubbing surfaces comprising:
a handle; and
a sponge-like product connected to the handle, said
sponge-like product comprising:
5 (a) a multi-layer compressible substrate, said
substrate comprising a plurality of stacked plies of an uncreped
throughdried paper web, the paper web comprising pulp fibers, the paper
web having a basis weight of from about 15 gsm to about 80 gsm, the
paper web containing a wet strength agent, said plies being attached
10 together; and

(b) an outer cover that allows water to pass therethrough, said compressible substrate being enclosed by the outer cover, the outer cover being made from a material being selected from the group consisting of a meltblown web, a spunbond web, a paper towel, a bonded carded web, a scrim material, a mesh material, a net, an apertured material, and mixtures thereof.

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57. A tool as defined in claim 56, wherein the tool comprises a mop.

58. A tool as defined in claim 56, wherein the paper web comprises softwood fibers and high-yield fibers, said paper web having a molded textured surface created during throughdrying, said substrate including at least ten stacked plies, said plies being attached together at 5 selected locations by thermally bonding binder fibers between the plies.

59. A tool as defined in claim 58, wherein the binder fibers comprise bicomponent fibers.

60. A tool as defined in claim 59, wherein the bicomponent fibers are incorporated into the paper web during formation.

61. A method of making a sponge-like pad comprising:

providing a plurality of textured, wet resilient paper web layers comprising papermaking fibers;

disposing thermoplastic binder fibers on one or more 5 of the wet resilient paper web layers;

stacking three or more of the paper web layers such that the thermoplastic binder fibers are between the adjacent layers;

heating the binder fibers to melt at least a portion of the fibers; and

cooling the melted portion of the binder fibers, 10 whereby the binder fibers fuse and join the adjacent layers together to form an integral stack of paper web layers.

62. The method as defined in claim 61 further comprising the

step of enclosing the stack in a liquid pervious cover.

63. A method as defined in claim 61, wherein the textured paper web layers comprise throughdried paper webs containing high-yield fibers, the paper webs having an Overall Surface Depth of greater than about 0.2 mm.

64. A method as defined in claim 61, further comprising applying a molten polymer to the surface of at least one paper web layer of the plurality of paper web layers and allowing the polymer to harden to form an abrasive surface on the paper web.

65. A method as defined in claim 61, further comprising applying a curable polymer to the surface of at least one paper web layer of the plurality of paper web layers and curing the polymer to form an abrasive surface on the paper web.

66. A method as defined in claim 65, wherein the curable polymer is a photocurable resin and wherein curing the polymer comprises applying light to the resin to photocure it.